

MONTANA AERONAUTICS COMMISSION



Volume 14, No. 5

June-July, 1963

AOPA 360 Degree Rating Course in September

The Montana Aeronautics Commission is co-sponsoring the AOPA 360° rating course in Billings, September 19, 20, and 21st.

The course consists of four hours flight instruction and four hours ground school in basic instrument flying. Upon completion of the course, the Federal Aviation Agency's "Blue Shield" is awarded to participants without a check ride with an FAA inspector.

This will be the first course of its type held in the Northwest, however, it has been held in the East with great success.

Mr. Ralph Nelson of AOPA/Foundation will be course director and Professor Jack Eggspuehler of Ohio State University will instruct the ground school.

Cost of the course will be \$50, which amount includes all books and supplies.

Participants take the course in their own aircraft or aircraft rented by them.

The Montana Aeronautics Commission has a great deal of evidence that flyers have a definite desire to upgrade their abilities and presentation in Montana. The AOPA's excellent course will provide them the opportunity.

A brochure and registration blank will be mailed to pilots in

Montana and surrounding states in the near future.

MONTANA TOWER-CONTROLLED AIRPORT OPERATIONS

APRIL, 1963

	Total Operation	Instrument Operation
Billings	7658	703
Great Falls	6905	1363
Missoula	3779	225
Helena	2614	140
MAY, 1963		
Billings	11,057	640
Great Falls	8680	826
Missoula	4009	226
Helena	3221	91

FEDERAL AVIATION AGENCY INSPECTION ITINERARY

Airport	July 1-8-15-22-29	August 5-12-19-26	September 2-9-16-23-30
Billings (Logan Field)	18	15	19
Bozeman (Gallatin Field)		14	
Culbertson			11
Glasgow			12
Great Falls (International)	11	8	
Lewistown	24		
Missoula	25	22	26

LUKENS MPA PRESIDENT

Russ Lukens, well known pilot and insurance man of Great Falls, was elected President of the Montana Pilots' Association at their convention in Helena on May 25th and 26th. Lukens succeeds Herb Sammons of Cut Bank.

Other elected officers are: C. D. Markle, Glasgow, Vice-President; and Louella Nelson, Great Falls, Secretary.

The new board of directors are Bruce Toole, Billings; John

Vance, Helena; Bob Taylor of Chinook and Herb Sammons, Cut Bank.

The business and fun packed meeting ended with a wake-up breakfast Sunday, May 26th. 170 MPA members, representing all 18 hangars, attended.

Homer Loucks, Director of Instructional Services for the Montana Department of Education spoke on the place of aviation education in the school system.

Henry L. Newman, Deputy Administrator of the FAA's Central Region, Kansas City, Mo., spoke on upgrading pilots' education so that they may more effectively use the facilities available to them.

Representatives of the Montana Aeronautics Commission reported on their activities relative to Airports, Safety and Education and Aviation Education.

The MPA set up a loan program so that deserving students could continue their studies as engine airframe mechanics or take flight instruction. The Montana Aviation Trades Association designed the loan program which will be carried on by the MPA.

A 1963 Glasgow High School graduate, Jack Kotaki, was named Montana's "Young Pilot of the Year". Kotaki received his student, private and commercial licenses on his 16th, 17th and 18th birthdays.

John Vance, Helena attorney, was named "Pilot of the Year".

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COMMISSION**

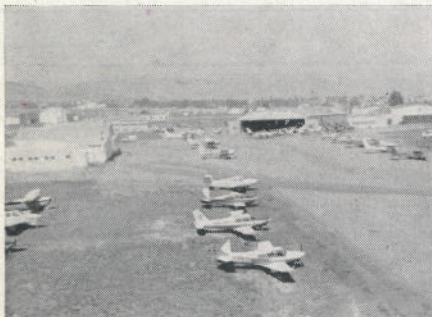
Box 1698
Helena, Montana

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ARTCRAFT  PRINTERS



A few of the 60 odd planes on the ramp at Helena during the MPA convention.

Vance is Montana Wing Commander of the Civil Air Patrol. He is an ardent aviation booster and has secured several scholarships for young people in aviation.

Officers and members of the Helena Hangar who hosted the convention were highly commended by the membership.

FLIGHT SAFETY TIPS

It is an absolute and foregone conclusion that a non-instrument pilot, when faced with actual instrument conditions, will lose control of his aircraft somewhere between 30 seconds and 6 minutes after entering bad weather.

FOR SALE: 1957 Cessna 180 - A w/crosswind gear and EDO amphibious floats, TTA & E 600 hrs.; LTRA-6 w/omnimeter, ADF-T-12, CAT, full panel, full paint and corrosion proofing, clock. Very clean. Trades will be considered. Art Stapleton, Bozeman, Montana. Phone 587-7198.



MAC CHAIRMAN E. B. COGSWELL.

West Yellowstone Airport Ground Breaking

At Ground Breaking Ceremonies June 2nd, Senator Mike Mansfield stressed the importance of Yellowstone National Park as a tourist attraction and the need the \$1,318,888.00 West Yellowstone airport will serve when it is completed next year.

Approximately 250 persons from Great Falls, Helena, Bozeman and other Montana communities attended the ceremonies.



Senator Mansfield breaks first ground.

Twenty-five dignitaries appeared on the speakers' platform. In addition to Senator Mansfield, speakers were: J. M. Beardslee, Administrator of the Federal Aviation Agency's Central Region, Kansas City, Mo.; Lon Garrison, superintendent of Yellowstone National Park; George H. Duvendack, supervisor of the Gal-



Lynch, Garrison, Duncan and Senator Mansfield.

latin National Forest; G. G. Brooder, Vice-President of Western Air Lines; Claude Duncan, President of the West Yellowstone Chamber of Commerce; and E. B. Cogswell, Great Falls, Chairman of the Montana Aeronautics Commission.

Mansfield said that efforts to

build the airport had started about twelve years ago and that the ceremonies marked the end of a long struggle.

The airport is jointly financed by the Federal Aviation Agency and the National Park service. This is the first airport to be built under a national park service program of building near parks.

The Montana Aeronautics Commission will operate the airport.

The airport will have an 8400



Construction contractor Burggraf and Senator Mansfield.

foot asphalt runway with parallel paved taxiways and will be fully lighted. It is designed to accommodate aircraft of the Electra Turbo jet type.

Wenzel and Co., Great Falls is the consulting engineer; Burggraf Company, Idaho Falls, is the construction contractor.

Flying Farmers and Ranchers Crown New Queen

At their spring meeting, June 2nd, the Montana's Flying Farmers and Ranchers selected Mrs. Robert Brown of Harlowton as their "Queen" for the coming year. Mrs. Brown succeeds Mrs. Leonard Sorenson of Bozeman who has reigned for the past year.

Bob Palmersheim of Lynch Flying Service presented the Cessna Aircraft trophy to the new queen. Mrs. Brown will represent the Montana Flying Farmers and Ranchers at their National Convention in Rapid City, South Dakota, August 4th to 9th.

The June meeting was held at the Sam Langhus ranch North of Big Timber. Among the thirty odd aircraft on the strip were planes from Alberta, Saskatchewan and Manitoba.

Army Aviator Ratings Available

Civilian pilots with commercial ratings now eligible for direct commissions as warrant officers with Army Aviation. Initial appointments are for three years of active duty. Also eligible are former servicemen, regulars, and reservists of other services (Navy, Air Force). Age limit is 42. Ratings can be single-engine, multi-engine or helicopter. Army's recognition of FAA-licensed commercial pilots reflects heavy expansion of its aviation sections, both in aircraft and personnel.

See DA Circular 601-7—Change 1.

80,000 Mechanics

There are approximately 80,000 certificated maintenance airmen working at their trade in the United States, a recent Federal Aviation Agency survey indicates. The total includes 30,000 working for the airlines, 44,000 in general aviation and 6,000 with manufacturers and the government.

FAA based its estimate on 28,626 replies to the survey and other statistical information available to the Agency. The survey was conducted last Fall by the Maintenance Division of FAA's Flight Standards Service.

To date, more than 118,000 certificates have been issued to maintenance airmen, but little information has been available on the number still active since they are not required to revalidate their certificates. The survey was conducted to develop this and other information needed to update and modernize the maintenance airmen certification and surveillance program.

Survey questionnaires were distributed to all segments of aviation, including the airlines, corporate aircraft owners, repair stations, fixed base operators, mechanic schools, manufacturers and

the military services. All but 338 of the 28,626 replies were usable for statistical purposes.

The airlines provided the largest response with 16,714 completed questionnaires. Only 11,574 replies were received from general aviation. This relatively poor showing by general aviation is attributed to the wide deployment of maintenance airmen working in this field.

Approximately 48 per cent of those responding were below 40 years of age. Fifty percent were between 40 and 60, two percent were 60 or above, only 14 percent were in their twenties, and a mere 27 replies were received from maintenance airmen under 20.

Only 13,711 respondents, or 48 percent, reported having received any work-related training during the 24-month period of 1961-1962. Similarly, only 40 percent received any kind of on-the-job training during the same period, and a mere seven percent received any training at a manufacturer's service school.

As might be expected, the largest concentrations of certificated maintenance airmen are found in the most populous states. California led in responding to the survey with 5,735 replies. It was followed by New York with 3,321, Florida with 2,347, Texas with 1,541, Oklahoma with 1,327, Missouri with 1,073, Minnesota with 1,063, Illinois with 938, New Jersey with 928, and Pennsylvania with 796.

General aviation district offices in Montana list sixty active certificated mechanics.

FOR SALE: 1948 Cessna 170 (N4409 V) with 0-300 Engine. LTR-5 with OMNI scope. Excellent fabric. Polished aluminum and maroon. Every instrument hole filled. Steerable tail wheel. This plane faster than 170-A, 170-B or 172. This type engine in a 172, flew 1600 hours without landing. This aircraft honestly clean. Oil filter on engine. Good battery, glass and tires. Starts good, runs very smooth. No mag. drop. Radio works good. Fresh annual. \$3750. 2355 TTA 662 since first major on new engine. Contact Harold L. Beddor; 203 South Bozeman Street, Dillon, Montana. Area Code 406; 683-2906.

FLYERS' CALENDAR

June 29 — Free Fly-In Breakfast—Lovell, Wyoming. Lovell-Cowley-Bryon airport — airport dedication ceremony at 11:00 a.m. Free transportation and tour of the new FAA radar site on Medicine Mountain from 10:30 a.m.-6:30 p.m. (This will be the only public opening of this radar installation.) Big banquet and dance Saturday nite at the Lovell armory. Speaker, Joseph H. Tip-pets, Ass't. Administrator of the FAA's Western Region. (Bring your own tie-downs).

July 4—Fly-In at Plentywood, Montana. Free breakfast. Entertainment and a big old-fashioned Fourth of July celebration.

July 4 — Flying Farmers and Ranchers Fly-In Pot Luck. Baldwin's at Polson, Montana. There will be Boating, Water Skiing, Swimming and Good Food.

July 14—Idaho Centennial Air Show—Boise,, Idaho.

July 27 and 28—Diamond Cup Races—Lake Coeur d'Alene, U. S. Navy's "Blue Angels" jet aerobatic team beginning at 1400 (2:30 p.m.) till 1535 (3:45) MST on both afternoons. All pilots avoid the North end of Lake Coeur d'Alene during this time!

August 16-17—Eighth Annual Michigan Small Race—99's. Proficiency race sponsored by the Michigan Chapter of 99's Inc. All women pilots with private license or better are eligible. Contact Maisie Stearns, 3963 East E Avenue, Kalamazoo, Michigan.

August 31—Montana 99's Air Race—Route is: Start—Glasgow, Havre, Lewistown to Great Falls.

27-28 July, Billings hangar, Montana Pilots Association. No host fly-in Diamond S Motel, Boulder. New airport at Boulder. All Hangars invited.

Things might be worse. Suppose your errors were published every day like those of a baseball player.

Be wary of the chap who keeps reminding you that you can't take it with you. He's almost certainly planning to take it with him.

Accident Prevention



BERNARD A. GEIER
FAA Safety Agent—Billings

Mr. Geier, who wrote a monthly article for this paper, has been promoted and transferred to the Federal Aviation Agency's Milwaukee office.

He has served the Montana aviation industry extremely well in many varied ways. Bernie went beyond the normal requirements of his office to see that Montana flyers were as competent and safe as any in the nation.

From all of us who benefited greatly because of your six years amongst us Bernie, our best wishes in your new position. Hurry Back!!

Montana Airmotive Dealer for Mooney

Montana Airmotive, Inc., (Montair) Logan Field, Billings, has announced that it has been appointed a dealer for Mooney Aircraft, for the State of Montana.

Montair president, Bin Rowland, said his firm will handle both the 185 mph retractable gear Mooney Mark 21 and the 147 mph, fixed tricycle gear Mooney Master. Both models are deluxe four-place aircraft. Montair, in addition to Mooney sales, will perform all types of service and repair work on Mooney aircraft.

Rowland also announced that Montair—previously engaged only in the business of airframe and aircraft engine overhaul repair and service—is entering the airplane charter, rental and student instruction business. His firm employs three FAA certificated A & E mechanics in addition to

service and administrative personnel.

An Open House is planned for mid-June and free demonstration flights in the new Mooney will be offered. Montair is located at Logan Field, about 400 yards east of the Airport Administration Building.

FOR SALE: TG-3A Schweizer Glider. 2 place tandem, fresh license, full panel, new glass, always hangared, complete with trailer. Price \$1500. Contact Major Rex Tanberg at Air National Guard Hangar, Great Falls, Montana. Phone 453-0346.

FAA Names Hensley Flight Examiner



FLIGHT EXAMINER HENSLEY

Walter C. Hensley of Havre has been designated a flight examiner according to Lee C. Mills, Supervisor of the FAA's General Aviation District Office in Helena.

Hensley will give flight checks for Private or Commercial certification and related ratings in the Havre area.

Walt, owner of Hensley Flying Service, was born on a homestead west of Great Falls. He graduated from Great Falls High School in 1934 and took his first flying lessons in 1936 while working on the Fort Peck project.

One of his first instructors was Frank Wiley, presently Advisor to the Montana Aeronautics Commission and an early day Montana flyer.

When the war broke out in 1941 Walt served as a flight instructor with the Civilian Pilot Training program. Later he served in the United States Air Force Training Command and the Ferry Command. Walt returned to Havre at the war's end and has made his home there since that time.

He is married to the former Frances Felix of Kalispell. They have three children: Sharel, the oldest, is Mrs. Sam Bitz and has two children. She has been a private pilot since 1960; Dennis, who is seventeen has fifty hours flight time and has passed his written for a private license. Collyn who just turned sixteen starts her lessons this summer.

Walt has many hobbies. He hunts, fishes, shoots trap, plays bridge and says he still loves to fly, however, his favorite hobby is his grandchildren.

Walt's flying service offers flight instruction, charter service and agricultural flying to the Havre area.

The new Flight Examiner is a graduate of the Montana Aeronautics Commission - Montana Aviation Trades Association's Flight Instructors Course which was held in Great Falls this past winter.

FAA to Honor Aviation Mechanics

Establishment of an annual national awards system honoring aviation mechanics for outstanding contributions to air safety has been announced by N. E. Halaby, Administrator of the Federal Aviation Agency.

Halaby said the awards are part of an overall FAA effort to bring greater recognition to aviation mechanics by emphasizing their vital role in air safety. He pointed out that 1963 has been designated by the Agency as "Maintenance Year".

FAA will administer the Aviation Mechanic Safety Awards program in conjunction with the Flight Safety Foundation of New York City. Industry and aviation trade organizations also will participate.

Selection of winners will be on

the basis of (1) the best suggestion or development by an aviation mechanic for a redesign of or improvement to an aircraft or any of its components leading to increased reliability or safety in aviation, and (2) the best suggestion or development by an aviation mechanic of a maintenance or inspection procedure contributing significantly to safety in aviation.

Separate winners will be chosen from general aviation and the airlines at the state, regional, and national levels. All winners will receive appropriate citations and a trophy. In addition, the two national winners will travel to Washington, D. C., for a formal presentation of special plaques.

Selection of state and regional winners will be made by state aviation officials and representatives of FAA and industry. The national winners will be chosen by the Federal Aviation Agency, the Flight Safety Foundation and a committee of prominent aviation persons.

This year's awards will recognize outstanding aviation mechanic contributions developed during 1962. Nominations will be accepted from June 15 until September 1st. Nomination forms will be available at airports, repair stations, and other aviation facilities and from FAA safety inspectors.

FOR SALE: Piper J-3; 65 hp; 1946 Model. Must be seen to appreciate. Call for more details. Price reasonable or will take a pick-up in on trade. Leo Schaefer, Cut Bank, Montana. Call 938-4332, daytime or 938-2126, evenings.

FOR SALE: Cessna 120—350 hours since MOH. Low freq. receiver. New Fabric and Upholstery. Very clean. Price \$1750. Bill Fairhurst, Three Forks, Montana.

FOR SALE: Piper J-3 with C-85 engine. 475 hours since MOH. Airboy trans. and Receiver. Turn and Bank. White with Red trim. \$1100. Bill Fairhurst, Three Forks, Montana.

FOR SALE: 85 hp Piper J-3, 829 Hours TT engine; 65 hours since TOH; 907 hours airframe; 30 gal. fiberglass belly tank or 40 gal. internal tank and spray rig; fresh license. Contact Glenn Lindberg, Box 318, Cut Bank, Montana. Phone 336-2417.

Summer Thunderstorms

R. A. Dightman
Meteorologist in Charge
WBAS, Helena

All parts of the United States have their seasons, and all have their peculiar characteristics of special importance to the flying public. One of the most seasonal of all Montana weather phenomena is the thunderstorm, over 90 percent of them occurring during the period mid-May to mid-September, with about a third of the total in July. For Montana, East of the Continental Divide, about 40 to 45 thunderstorms a year are observed at most stations; West of the Divide there are about 20 to 25 occurrences. Thunderstorms also are usually a little more energetic in the eastern half of Montana than in the mountainous western half.

Although much has been learned about the thunderstorm in recent years, much remains to be "pinned down". Through aircraft, of special types, flying into thunderheads, and through the use of short-wave weather RADAR, some of the characteristics of these storms are better understood now than they were a few years ago. Use of RADAR, for example, has shown that when thunderstorm cells are imbedded in an air mass moving at a rate of less than 10 m.p.h., the cells very often have an apparent movement different from the observed wind speed and direction. In these cases the direction of cell development was found to be more important than the wind in determining actual direction of the storm itself. When winds are stronger than 10 m.p.h., the cells follow the wind speed and direction quite closely. It has been observed that when two mature thunderstorm cells have edges about three miles apart, there is a tendency for a new cell to develop about half way between them. There is also a tendency for new cells to form about three miles downwind from mature cells. This helps explain why thunderstorms often are composed of several cells—what may appear to the eye as a single large thunderstorm may ac-

tually be composed of several adjacent cells, each in a different phase of its life cycle.

Thunderstorms almost always occur in convective cells whose tops grow rapidly to 25,000 or 30,000 ft., although lower tops don't necessarily mean that a thunderstorm can't happen. Tops can reach heights of 50,000 or 60,000 in some of the stronger developments. From R A D A R studies, it has been found that the average duration of individual cells is 23 minutes, and that an average cell reaches maximum diameter in about 10 minutes after it starts to grow. Another interesting fact about thunderstorm cells is their tendency, as observed by RADAR, to have horizontal diameter and vertical depth of about the same extent—in other words, thunderstorms tend to be as wide as they are high. Average cells run about 5 miles in diameter, and their tops reach about 35,000 ft. above sea level. Subtracting the 10,000 feet, that Montana thunderstorm bases often are above sea level, the vertical extent is seen to average about 25,000 feet. As noted earlier, however, when several cells are close together, and form what appears to be a single thunderstorm, the horizontal diameter can increase to 10, 15, or 20, or even more miles.

So much for general notes on a few peculiarities of this type of storm. The weather hazards of thunderstorms to pilots are well-known; they include (not necessarily in order of importance) turbulence, icing, hail, and lightning. At the beginning of the annual thunderstorm season, it would be well to review at least those four reasons why thunderstorms are excellent things to stay away from. And it might be helpful to remember that favored areas for new cells to develop are downwind a few miles from an existing cell, or in between two cells whenever there is a clear space between them of 3 miles or less. When proceeding between cells, be alert for the beginning of a new cell.

Agreement is universal—thunderstorms are to be avoided. In

summary, some rules that may help are:

1. If a cumulus cloud has grown quickly to around 25,000 ft. over any part of Montana, consider it to be a thunderstorm.

2. If a thunderstorm must be passed within a short distance, the upwind side is much safer than downwind.

3. When flying between thunderstorms, remember rule 2 above, and also watch for new cells in the open area being headed into.

4. The direction of the wind up to about 20,000 ft. is a fairly reliable indicator of direction of movement of thunderstorms only when wind speeds are stronger than 10 m.p.h.

5. Only a small percentage of thunderstorm cells produce hail, but any thunderstorm of larger than average size should be treated as a potential hail source.

6. While an average cell lasts only about 23 minutes, development of new cells usually gives an impression that they last much longer—up to several hours.

7. Nighttime thunderstorms are more common than generally supposed—but lightning is easily seen at night, and shows the areas to avoid.

8. When flying around a thunderstorm, one should be alert to strong and gusty winds near the surface. Again, this hazard is likely to be greatest downwind from the storm.

BY THE BOOK

The following regulations were published back when "jerk the wires and kick the tires" was a short term for walk around pre-flight inspections. The exact source of these regulations is not known. They have a military sound to them, but most of them still make sense without being cluttered up with a lot of gobble-de gook.

1. Don't take the machine into the air unless you are satisfied it will fly.
2. Never leave the ground with the motor leaking.
3. Don't turn sharply when taxiing. Instead of turning short,

have someone lift the tail around.

4. In taking off, look at the ground and the air.
5. Never get out of a machine with the motor running until the pilot relieving you can reach the engine controls.
6. Pilots should carry hankies in a handy position to wipe off goggles.
7. Riding on the steps, wings or tail of a machine is prohibited.
8. In case the engine fails on the take-off, land straight ahead regardless of obstacles.
9. No machine must taxi faster than a man can walk.
10. Do not trust altitude instruments.
11. Learn to gauge altitude, especially on landing.
12. If you see another machine near you, get out of the way.
13. No two cadets should ever ride together in the same machine.
14. Never run engine so that blast will blow on other machines.
15. Before you begin a landing glide see that no machines are under you.
16. Hedge-hopping will not be tolerated.
17. No spins on back or tail will be indulged in, as they unnecessarily strain the machine.
18. If flying against the wind, and you wish to turn and fly with the wind, don't make a sharp turn near the ground. You might crash.
19. Engines have been known to stop during a long glide. If the pilot wishes to use engine for landing he should open throttle.
20. Don't attempt to force machine onto the ground with more than flying speed. The result is bouncing and ricocheting.
21. Aviators will not wear spurs while flying.
22. Do not use aeronautical gasoline in cars and motorcycles.
23. You must not take-off or land closer than 50 feet to the hangar.
24. Never take a machine into the air until you are familiar with its controls and instruments.

25. If an emergency occurs while flying, land as soon as you can.
26. It is advisable to carry a good pair of cutting pliers in a position where both pilot and passenger can reach them in case of an accident.
27. Joy rides will not be given to civilians.
(Michigan Aviation)
(June, 1963)

AVIATION EDUCATION NOTEBOOK

Mary Jo Janey

Two Aerospace Education Workshops have been planned for Montana this summer, one at Missoula, the other at Dillon. Teachers and administrators will take these courses, which are designed to give basic understanding of the aviation industry, airplanes, and many subjects related to aviation such as meteorology, navigation, and theory of flight. The participants at both places will fly in airplanes, visit airports, hear talks by many people in the industry and generally see how aviation is closely related to education at all levels.

Many fine speakers and programs are scheduled to appear during the workshops. Among the speakers at Montana State University will be Mr. Paul Rodgers, Vice-President, Ozark Airlines; Dr. Mervin Strickler, Chief Education Officer, F.A.A.; Mr. Donald M. Fuquay, U. S. Forest Service Meteorologist; Captain A. S. Goodfellow, U. S. Navy; Dr. Robert Tieman, National Aeronautics and Space Administration; Captain Warren Schultz, Northwest Airlines; Mr. Max Ogle, Civil Air Patrol Aviation Educationist; Major James Ves'sells, Air Force Academy; Mr. Charles Lynch, Director, Montana Aeronautics Commission. Programs and field trips include a visit to the smoke-jumpers facilities; model airplane demonstrations; trips to: Boeing-Renton, FAA Auburn Air Traffic Control Center; Sand Point Naval Air Station, and McChord Air Force Base by military airlift; Spacemobile demonstration from

NASA, and a fun week-end at Quarter Circle MC Ranch at Polebridge. Sounds imposing, and indeed it is, that such a wonderful array of educational opportunities, each of them worthy of special attention, could be brought together in the space of five weeks.

There will also be class sessions, during which lectures and panel discussions will reveal the intricacies of aircraft nomenclature, weather, problems of space travel, engines of all kinds, aviation safety, uses of airplanes, and many more topics besides. One interesting feature will be a panel composed of Herb Sammons, Russ Lukens, and Pud Lovelace, who will discuss the ways they use airplanes for their respective businesses and professions.

At Western Montana College, Dillon, the course will be for three weeks, afternoons. The Dillon group will join the Missoula group for the Seattle trip. Speakers at Dillon include Col. John Vance, Montana Wing Commander, CAP; Mr. Eugene Kropf, Public Relations Officer, Western Region, FAA; Mr. Ogle, CAP Aviation Educationist; Mr. Charles Lynch, Montana Aeronautics Commission. The Spacemobile will be a featured program at Dillon. Participants will fly in various kinds of aircraft, from Cubs to C-123's.

It would be hard to assess the influence on our youngsters that offering these courses to teachers makes possible. Say that each teacher will subsequently have ten years more of teaching, with an average class of twenty-five. Simple arithmetic shows that two hundred and fifty youngsters will understand more about aviation **because their teachers understand more** and include it in their teaching. Project a little farther. Each summer, from sixty to eighty teachers take these courses. Eighty times two hundred and fifty — that is twenty thousand youngsters.

If the pundits are right in saying that aviation's strength lies at the grass roots, then it would seem that Montana is right in feeding the source.

FAA Issues New Revalidation Proposal

Suggestions made by the aviation community are being incorporated in a proposed system to simplify and modernize the issuance of airman, medical and ground instructor certificates, the Federal Aviation Agency has announced.

The system was announced originally in a Notice of Proposed Rule Making dated March 31, 1962, and circulated for industry comment as Draft Release 62-13. A review of these comments and other data has shown FAA that certain parts of the proposed system should be adopted and others changed or eliminated.

As a result, a new Notice of Proposed Rule Making (Notice 63-18) has been issued. Its principal points are:

(1) Issuance of a consolidated certificate card listing all the airman certificates and privileges due the holder. Medical certificates also would be shown on the card. The card would be wallet size and made of durable material.

(2) Submission of information every two years by airmen reflecting the extent of their active participation in aviation.

(3) Issuance of a new certificate card every two years upon providing this information.

(4) A prohibition against exercising the privileges of certificates if the holder has not applied for his new card on time. The prohibition would last until application was made and the certificate card received.

Changes from the original proposal include adopting a uniform 24-month cycle for certificate renewal in place of the 6 to 24-month variable cycle originally proposed and using the holder's birth month as the specified time for revalidation and renewal rather than the date of medical examination or date of issue.

Parts of the original proposal eliminated include expiration of certificates that are not revalidat-

ed or renewed in time; requiring the holder to be re-examined for reissuance of certificates which were not revalidated or renewed in time; requiring appropriate medical qualification as a condition to certificate revalidation and renewal; and requiring prescribed recent experience as a condition to certificate renewal.

FAA, however, will continue to require airmen to meet the present requirements regarding medical qualification and recent experience to exercise the privileges of their certificates.

The Agency estimates the effective date of the new system as January 1, 1964. Initial revalidation for certificates issued prior to that date would be required before the end of the holder's birth month in 1964 if he was born in an even year, or in 1965 if he was born in an odd year. All certificates issued or revalidated after the effective date would be in the new form and show the date when the next revalidation is due.

The identifying number on the card would be the holder's social security number or a number issued by the Agency if he has no social security number. Upon special request, holders of certificates numbered 5000 or below would be permitted to retain the present number.

In issuing the new Notice of Proposed Rule Making, FAA said the changes would further the two main objectives of its revalidation program. These objectives are modernization of the Agency's certificate issuance system and the acquisition of data considered necessary for the proper discharge of the Agency's responsibilities.

The present system of issuing airman certificates has remained virtually unchanged from the earliest days of the old Civil Aeronautics Administration and no longer serves the needs of the public, the aviation community of the Agency.

Airman certificates presently are issued for an indefinite period. Although there are requirements for medical exams and for maintaining proficiency, there is no present means of keeping the

central record system up to date. Approximately 1,800,000 certificates have been issued since 1926. All of them remain in the files.

Comments on the new Notice of Proposed Rule Making will be accepted until July 15 at the Dockets Section, Federal Aviation Agency, Washington 15, D. C.

Congratulations!



CERTIFICATES ISSUED RECENTLY TO MONTANA FLYERS

Holst, Kenneth E., Plentywood—
Private
Suckstorff, Robert E., Sidney—
Student
Carey, T. Hurly, Sidney—Student
Settle, Robert C., Wibaux—
Student
Laehr, Arthur E., Glasgow AFB
—Flight Instructor
Kauffman, Robert E., Billings—
Private
Alfon, James R., Williston,
North Dakota—Private
Robinson, Douglas E., Canada—
ATR
Billmeyer, John R., Hogeland—
Student
LeDuc, Gorvan J., Laurel—
Student
Sullivan, Gerald A., Benchland—
Student
LaBonte, Daniel O., Fairview—
Student
Hossfeld, Ronald L., Rapelje—
Private
Wyrick, Donald H., Baker—
Student
Foeste, Arthur E., Billings—
Student
Foeste, Arthur A., Billings—
Student
Wilcox, Leslie E., Rapelje—
Student
Cory, Paul F., Riverton, Wyoming—
MEL on Comm.
Hardy, Elmer E., Billings—
Mechanic Powerplant
Stringer, Ervin T., Medicine Lake
—Private
Foos, Donald A., Billings—
Student
Keller, George E. Jr., Billings—
Student

Mullin, Clinton R., Lambert—
Student
Fletcher, Alan, Poplar—Student
ives, Gregory J., Roundup—
Student
Lillie, Harvey E., Fairview—
Student
Wayman, John A., Billings—MEL
on Private
Miller, Charles C., Billings—
Student
Dehn, Karl J., Power—Student
Curtis, Virgil D., Roundup—
Student
Dreese, Edward S., Broadview—
Student
Wilson, Carroll L., North Dakota
—Student
ne, William J., Ada, Michigan
—MEL on Comm.
Haegle, Annette F., Glasgow—
Student
Oswood, Arlton J., Glasgow—
Student
Tisdale, James L., Louisiana—
Student
McGinnis, Robert A., Glasgow—
Private
Rowland, H. Binney, Billings—
Student
Clark, Allan P., Lovell, Wyoming
—Private
Lyons, Leslie L., Billings—
Student
Agney, Colvin H., Billings—
Student
Cowan, James R., Buffalo,
Wyoming—Private
Russell, Clifford L., Cody,
Wyoming—Private
Jackson, Floyd N., Cody,
Wyoming—Private
Robertson, William E., Dodson—
Student
Lesh, Nicholas L., Great Falls—
Student
Connerly, Arlie D., Great Falls—
Student
Conner, Michael A., Darby—
Student
Wheeler, Fern B., Great Falls—
Student
McKnight, Edward L., Helena—
Student
Covey, Russell D., Missoula—
AMEL on Private
Reiss, Peter T., Missoula—
Private
Wardall, Skippe W., Great Falls
—AMEL on Private
Link, Lonnie Z., Wagner—
Student

Joseph, Eddie C., Great Falls—
Student
Nunn, Archie, Great Falls—
Comm.
Larson, Marvin R., Bynum—
Comm.
DePriest, Frank M., Chinook—
Student
Rudolph, Lewis M., Butte—
Private
Mouw, Daryl J., Great Falls—
Student
Sutherland, Ken J., Great Falls—
Student
Stensvad, Larry D., Melstone—
Student
Hancock, Earnest R., Livingston
—Student
Paugh, John R., Havre—Student
Bonham, Charles O., Drummond
—Student
Schulz, James G., Drummond—
Student
Elig, John J., Great Falls—
Student
Montgomery, Edwin C., Great
Falls—Boeing 377 and Instru-
ment on Comm. AMEL
Shine, Francis M., Great Falls—
Instrument
Hanson, Charles H., Cut Bank—
Student
King, Leonard A., Great Falls—
Comm. AMEL, DC-3 and In-
strument
Brown, Gerald R., Great Falls—
Student
Pozder, Delores E., Drummond—
Student
Bauer, Herman J., Great Falls—
Student
Bunker, Terry H., Great Falls—
Student
Purkett, David F., Bynum—
Student
Pittman, Joedward, Great Falls—
Student
Bodner, Kenneth M., Kansas City,
Kan.—Private
Newby, Paul G., Belgrade—Flight
Instructor
Dahl, Gary Edmund, Bozeman—
Comm.
McLees, Richard N., Manhattan—
Private
Firehammer, Burton D., Bozeman
—Private
Robinson, Willard B., Bozeman—
Private
Penn, Gerald D., Great Falls—
Instrument
Dunlap, Robert D., Livingston—
Student

Posewitz, James A., Glasgow—
Student
Ralston, W. R. Jr., Glasgow AFB
—Commercial
Lohof, Martin R., Glasgow AFB
—Private
Munson, Sam A., Glendive—
Private
Pilgrim, Joseph E., Poplar—
Student
Oswood, A. J., Glasgow—Private
Nordwall, Roy W., Glasgow—
Student
Rounce, Ronald W., Sidney—
Private
Marshall, Charles L., Sheridan,
Wyoming—Student
Artz, Donald E., Billings—
Instrument
Moran, Chester Fremont,
Columbus—Student
Cantrell, Jerold M., Laurel—
Private
Biehl, Floyd L., Buffalo—Flight
Instructor
Taylor, Joseph M., Sidney—MEL
on Private
Kampfe, Donald F., Red Lodge—
Private
Kleim, Joseph G., Cody—Private
Ovitt, Ralph A., Dillon—Private
Johnson, Gordon, Moccasin—
Private
Storer, Duane L., Columbus—
Student
Julien, Harold W., Cody—Comm.
Bublitz, W. E., Cody—Instrument
Johnson, Chester L., Benchland—
Private
Engelman, M. M., Worland—
Private
Gray, R. B., Worland—Private
Blake, L. J., Williston, North
Dakota—Private
Stevens, M. W., Lewistown—
Student
Brewer, C. B., Roundup—Student
Toomey, P. A., Williston, North
Dakota—Private
Fletcher, Alan, (Dr.), Poplar—
Private
Hall, Walter R., Billings—
Student
O'Hara, David C., Billings—
Student
Reaves, Robert E. L., Billings—
Student
Fencel, Thomas J., Lyons, Oregon
—Student
Banta, Phyllis K., Roberts—
Student

Crawford Stresses Need For Taxpayer to Understand General Aviation

In a recent N.A.C. Briefing (National Aero Club, 2311 Shelby Avenue, Ann Arbor, Mich.), Bob Crawford mentions the promising predictions for the future of general aviation, and then writes in part:

"Getting down to cases, shrewd observers like Bill Piper have warned that airports and airport facilities are lagging badly, and many feel that this is the fly in the ointment which might possibly disrupt the whole plan.

"If we search for the answer to the problem of lagging airport construction, we find an even more disturbing situation. If you have ever talked "airport financing" to chambers of commerce, city councils, boards of supervisors, in other words to the leading members of the non-flying public, the folks who are called upon to foot the bill for general aviation airports, then you know what I mean.

It is simply this:

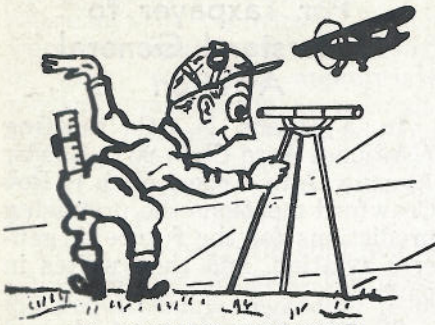
General aviation is neither well understood nor fully accepted by the tax-paying public.

"Sixty years after Kitty Hawk, eight out of ten Americans have never even been in an airplane. The old saw "I said it to Orville and I said it to Wilbur" is still around, though expressed in somewhat different language. Most people still equate "aviation" with "airlines", and when we say that we are not talking about "airline aviation" but "general aviation" we get only blank stares. This is the real rub; this is the barrier more baffling than the sound barrier—it's the public acceptance barrier that truly stands in the path of general aviation progress."

Prop . . . 2x4 used to support wing while you change a tire.

Throttle . . . What you'd like to do to the guy who bumped your wing-tip.

AIRPORT NOTES



By **JAMES MONGER**
Chief, Airports Division

NEW AIRPORTS: Construction has been completed on three new general aviation utility airports in Montana, located at Augusta, Boulder and Polebridge. These airports are open for air traffic, so plan on stopping by and making a personal inspection. All three have already received a considerable amount of use. Official openings for Boulder and Augusta were June 13.

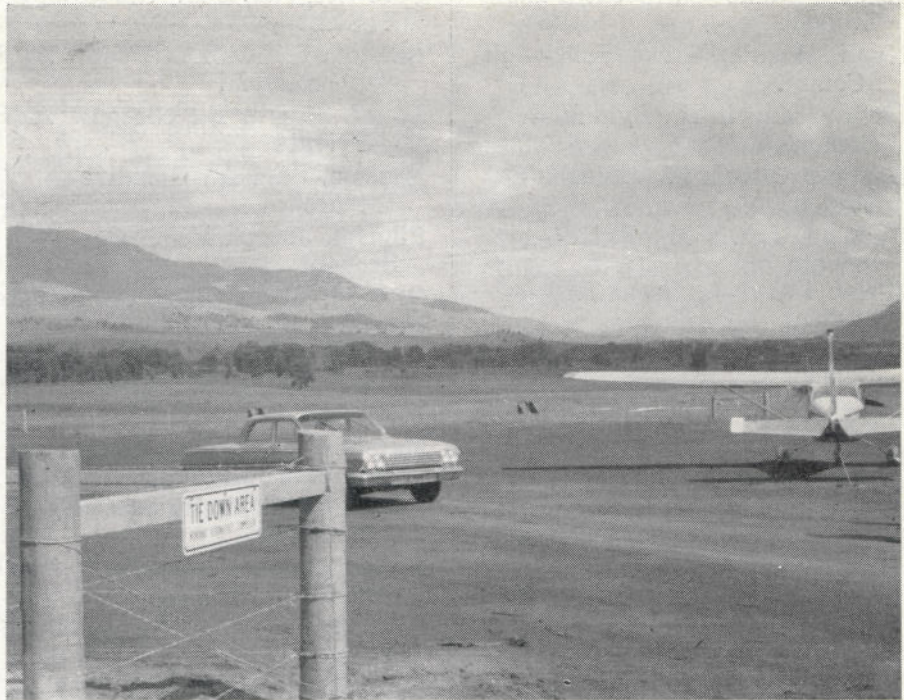
AIRPORT CONDITION REPORTS:

West Poplar. The border crossing airstrip north of Opheim at West Poplar is reported to be in very rough condition. Use extreme caution.

Sweet Grass. Maintenance will be underway in June to repair the rough taxi strip adjacent to the Coutts-Sweetgrass Airport. When using this border crossing airport, keep alert as it is rough and there may be men and equipment on the field.

Helena. Through the cooperation of the Helena Joint City-County Airport Board, the Montana Aeronautics Commission and the Army National Guard, a compass compensator is now being installed on the Helena Airport. This compass compensator will be available free of charge to any pilot wishing to swing his compass. The unit will be located directly across the east-west taxi strip from the office of the Montana Aeronautics Commission.

Whitefish. A contract was awarded to the Engebretson Gravel Company of Kalispell for the construction of a new airport at Whitefish. The total cost of



PARKING APRON AT BOULDER.

this general aviation utility airport will not exceed \$20,000. The construction contract was \$9,600. The project will be completed prior to September 1. This airport is being sponsored by the Flathead County Airport Board in cooperation with the Montana Aeronautics Commission.

Tiber. A Fly-In was held at the Tiber Reservoir Airstrip and Recreational Area on May 19. The runway is in very good condition and is receiving considerable traffic. 1500 trees have been planted by the Chester VFW Club in the newly developed golf course between the airstrip and the lake.



BOULDER AIRPORT.



Worthie Rauscher and MAC Director Lynch make final inspection of Augusta airport.



POLEBRIDGE

Hamilton. A contract in the amount of \$81,000 was awarded to the Winslow Construction Company of Whitehall for the construction of a new north-south paved runway at the Hamilton Airport. Construction will begin this summer.

Havre. An airport reconstruction project is underway at the Havre City-County Airport. Completion date is slated for late this summer.

SITE INVESTIGATIONS: Locations for new airports are now being considered at the following towns: Ekalaka, Hysham, Richey and Wibaux. It is hoped that the necessary land may be obtained this summer so that construction can start this year.

PILOTS PLEASE TAKE NOTE:

A number of complaints have been received by this office from contractors and from local airport boards regarding interference with construction by air-

planes. Three airports this past month were closed while the airport was being reconstructed, two locations were not yet classified as an airport; however, as soon as a wide straight piece of property was graded, it seemed that it attracted aircraft like a magnet. This places an undue burden upon the contractor who has enough to worry about without looking for aircraft. Please check notams and field condition reports prior to flying to airports under construction and also observe any crosses on an airport or runway indicating that they are closed to air traffic. It would be greatly appreciated if aircraft did not land on airports until they are officially opened. Below is a list of airports that will probably be under construction during various periods this summer. Please pay particular attention to their status: Choteau, Hamilton, Bozeman, Havre, Geraldine, Poplar, Great Falls, Chester, Missoula, Hardin, Dell, Dillon, Roundup, Whitefish, and Townsend.

1929—June 27-29. Capt. Frank Hawks breaks transcontinental speed records from East to West and West to East by flying from Roosevelt Field, L. I., to Los Angeles, in 19 hr. 10 min., 32 sec., and making the return trip in 17 hr., 38 min., 17 sec.

1936—June 25. President Roosevelt approves bill authorizing a maximum strength of 2,320 airplanes for the Army.

1938 — July 8. There are now 2,364 airports and landing fields in the U. S. and Alaska, of which 715 are partly or fully lighted for night use.

1940—June 21. The first delivery by air of fighting planes direct from American to British territory is made when 55 Northrop A-17A attack bombers are flown from Mitchell Field, L. I., to Halifax, Nova Scotia.

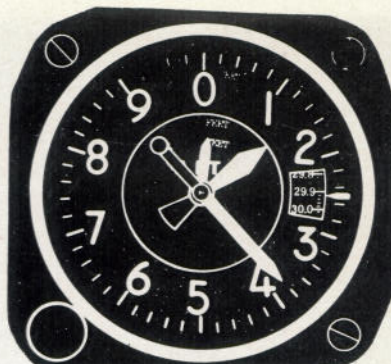
1941 — July 1. There are now 82,277 licensed pilots in the U. S., 2,733 of whom are women.



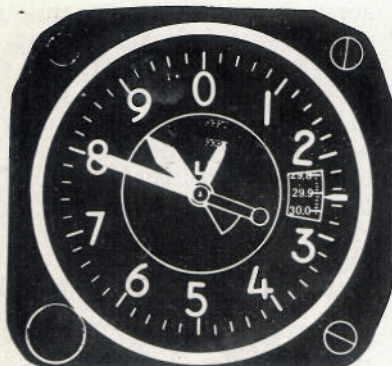
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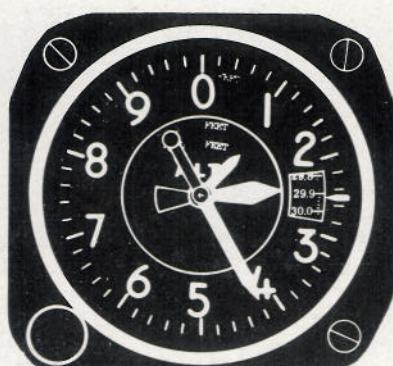
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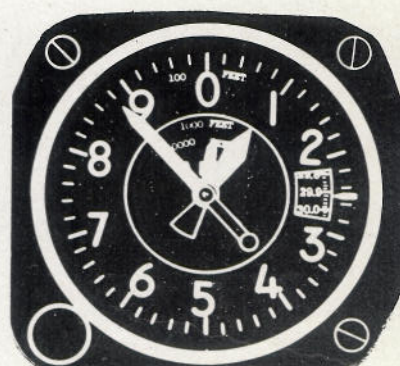
(3)



(4)



(5)



(6)

Exam-O-Gram No. 9 ALTIMETRY

Your altimeter is a vitally important instrument. You will agree that flight without this instrument would indeed be a hazardous undertaking — yet, **HOW WELL DO YOU KNOW YOUR ALTIMETER?** Take this short quiz on altimetry; grade yourself by checking the answers and explanations.

1. Check your ability to quickly interpret your altitude by jotting down the readings of the following 6 altimeters. Allow yourself 1 minute.

2. CAR requires that you maintain your cruising altitudes (VFR as well as IFR) by reference to your altimeter. What do regulations require concerning the setting (or adjustment) of your altimeter?

3. If you are flying in very cold air (colder than standard temperatures), you should expect your altimeter to read:

a) **higher** than your actual altitude above sea level.

b) **lower** than your actual altitude above sea level.

c) the same as your actual altitude above sea level.

4. Here are 4 altitudes with which you should be familiar. Briefly give the meaning of each. (1) Indicated altitude. (2) Pressure altitude. (3) Density altitude. (4) True altitude.

5. Assume that your proposed route crosses mountains with peaks extending to 10,900 feet above sea level. Prior to crossing this range, you adjust the altimeter setting window of your altimeter to the **current altimeter** setting reported by a Flight Service Station located in a valley near the base of this mountain range. If you maintain an indicated altitude of 11,500 feet by your altimeter, can you be assured of at least 500 feet vertical clearance of these mountain peaks?

Ground Speed . . . Elapsed time driving from home to the airport.

Parasitic Drag . . . Guy who bums XC ride and then complains because your ship isn't as fast as Charlie's.

ANSWERS TO QUESTIONS ON ALTIMETRY

1. 1) 7,500 ft. 2) 7,880 ft. 3) 1,380 ft. 4) 8,800 ft. 5) 12,420 ft. 6) 880 ft.

If your altimeter is the three-pointer-type sensitive altimeter such as those pictured, an orderly approach to reading your altitude is to first glance at the smallest hand (10,000-ft. hand): next read the middle hand (1,000-ft. hand); and last, read the large hand (100-ft. hand). For the two-pointer altimeter, simply read the small hand first and the large hand next.

2. Your altimeter should be set to the **current reported altimeter** setting of a station along the route of flight (Flight Service Stations, Control Towers, etc.). If your aircraft is not equipped with a radio, you should obtain an altimeter setting prior to departure if one is available, or **you should adjust your altimeter to the elevation of the airport of departure.**

3. If you are flying in cold air, you should expect your altimeter to indicate **HIGHER** than you actually are. There is an old saying—one well worth remembering

—that goes something like this: **"WHEN FLYING FROM A HIGH TO A LOW OR HOT TO COLD, LOOK OUT BELOW!"** In other words, if you are flying from a high pressure area to a low pressure area or into colder air, you had better be careful because you probably aren't as high as you think — assuming, of course, that no compensations are made for these atmospheric conditions.

4. INDICATED ALTITUDE — That altitude read directly from the altimeter (uncorrected).

PRESSURE ALTITUDE—The altitude read from the altimeter when the altimeter setting window is adjusted to 29.92. (This altitude is used for computer solutions for density altitude, true altitude, true airspeed, etc.).

DENSITY ALTITUDE — This altitude is pressure altitude corrected for nonstandard temperature variations. (It is an important altitude as this altitude is directly related to the aircraft's take-off and climb performance.)

TRUE ALTITUDE—The true height of the aircraft above sea level—the actual altitude. (Often you will see a true altitude expressed in this manner: "10,900 ft. MSL"—the MSL standing for **MEAN SEA LEVEL**. Remember that airport, terrain, and obstacle elevations found on charts and maps are **true altitudes**.)

No, you are not assured of 500 feet vertical clearance with these mountains. As a matter of fact, with certain atmospheric conditions, you might very well be 500 feet **BELOW** the peaks with this indicated altitude. (To begin with, 500 feet is hardly an adequate separation margin to allow on flights over mountainous terrain—1,500 to 2,000 feet is recommended in order for possible altitude errors and downdrafts.)

A majority of pilots confidently expect that the current altimeter setting will compensate for irregularities in atmospheric pressure. Unfortunately, this is not always true. Remember that the altimeter setting broadcast by ground stations is the **station pressure corrected to Mean Sea Level**. It does not reflect distor-

tion at higher levels, particularly the effect of **nonstandard temperature**.

When flying over mountainous country, allow yourself a generous margin for terrain and obstacle clearances.

KNOW YOUR ALTIMETER

Aerospace Education Workshop Director



Dr. A. C. Brewer, Science Coordinator for Springfield, Missouri, public schools, will direct the Aerospace Education Workshop being held at Montana State University from June 18-July 19.

The five-week course in aerospace education will enroll teachers from several western states besides Montana. It is designed to give teachers of all grade levels and subject areas a background knowledge of the aerospace world for use in upgrading their teaching.

Several outstanding visiting speakers will lecture to the group, including Mr. Paul J. Rodgers, vice-president of Ozark Airlines; Captain A. S. Goodfellow, U.S.N.; Charles Lynch, director of Montana Aeronautics Commission; Dr. Robert Tieman, National Aeronautics and Space Administration; Capt. Warren Schultz, Northwest Airlines; and Mr. Donald Fuquay, U. S. Forest Service Meteorologist.

The class will visit airport in-

stallations, both civilian and military, and will tour Boeing Transport Division at Renton, Washington, Sand Point Naval Air Station, Seattle, and FAA Air Traffic Control Center at Auburn, Washington.

Dr. Brewer comes to Montana State University summer Aerospace Workshop after eight summers directing the Tennessee Aerospace Workshops. During the regular school term he conducts bi-weekly educational television programs for 11,000 students in the Springfield, Missouri, school system. He works with individual students and teachers in his capacity as science consultant.

Dr. Brewer has taught physics and aeronautics in Missouri schools, and has served as administrator in elementary schools before taking his present position as science consultant for the Springfield schools.

He is married and has two daughters, one a teacher in San Lorenzo, California, and one a junior in William Jewell College.

Aircraft Maintenance

Maintenance, which includes preventive maintenance, means the inspection, overhaul, repair, upkeep, and preservation of your aircraft, including the replacement of parts. A properly maintained airplane is a safe airplane!

INSPECTIONS

Part 43 of the Civil Air Regulations informs you that certain inspections must be performed on your aircraft and that you must maintain the airworthiness of the aircraft during the time between the required inspections by having any airworthiness defects corrected.

Though maintenance requirements will vary for different types of aircraft, experience shows that most aircraft will need some type of preventive maintenance every 25 hours flying time or less, and minor maintenance at least every 100 hours. This is influenced by the kind of operation, climatic conditions, storage facilities, and age and construction of the aircraft. Most

manufacturers supply service information which should be used in maintaining your aircraft.

PERIODIC INSPECTION

This inspection must be performed within the preceding 12 calendar months, by either a certificated A & E mechanic holding an inspection authorization, an appropriately rated certificated repair station, or the manufacturer of the aircraft.

100-HOUR INSPECTION

An aircraft used to carry passengers for hire, or for flight instructions for hire, must be inspected within each 100 hours of time in service by either a certificated A & E mechanic, an appropriately rated certificated repair station, or the manufacturer. The periodic inspection is acceptable as a 100-hour inspection, but the reverse is not true.

DAILY AND PREFLIGHT INSPECTIONS

A certificated pilot may perform line-maintenance, preservation and upkeep, known as preventive maintenance, on an aircraft owned or operated by him. Typical preventive maintenance operations are found in Civil Aeronautics Manual 18, which may be obtained by sending a check or money order for \$1.50, payable to the Superintendent of Documents and addressed to: U.S. Government Printing Office Superintendent of Documents Washington 25, D. C.

The trouble with life is that you are half way through it before you realize that it's one of those Do-It-Yourself deals.

1950—July 5. James H. Doolittle is named "aviator of the decade" by the Harmon International Aviation Awards Committee and is winner of the Harmon trophy for the decade 1940 to 1949. Jacqueline Cochran is named "aviatrix of the decade," and Vice Adm. Charles E. Rosendahl is named top aeronaut "lighter-than-airman."

The road to success is always under construction.

Weather Tips To the Pilot

NORRIS E. WOERNER

**Aviation Forecaster
WBAS, Great Falls**

Weather is one of the hazards to the light airplane pilot. Statistics compiled during the past few years show that over 30% of all the fatal accidents occurred because weather had a significant effect on the flight operation.

Aviation weather forecasters are concerned with these airplane accidents because it is their job to try and indicate in their Area Forecast (FA), Terminal Forecast (FT), or Weather Advisories, significant weather conditions which could affect the safety of aircraft. From the forecasting angle, I would like to discuss briefly two possible weather-caused accidents which have occurred during my forecasting period. They serve to dramatize two widely different hazardous weather situations and illustrate the need for pilots to obtain thorough weather briefings.

Case 1. In the late summer of 1961, a neighbor of mine was planning a trip from Great Falls to Seattle and he stopped in the Weather Bureau Office for a weather briefing. On this particular morning, there was a Pacific frontal system which was expected to move in over western Montana by mid-afternoon from the northwest. Back of the front, temperatures aloft were cold enough to produce snow over the higher mountains while the surface observations back of the front showed considerable low cloudiness with scattered showers. In the briefing, I stated that this was the first weather system that we had had in a long time which contained significant weather, and that it would be over western Montana during his flight time. My suggestion was that he wait until the front passed through and then recheck the weather. He thanked me and continued through the Weather Bureau Office into the FAA Flight Service Station and filed his flight plan. The pilot reached Missoula ahead of the front, sat

there until the front passed through and then proceeded on to Seattle. He later mentioned that it was quite a rough flight from Missoula to Spokane. Tragically, it was in this same frontal system that four young men from the Malmstrom AFB Aero Club on a flight direct from Great Falls to Seattle, crashed near the Chinese Wall in western Montana killing all four.

Case 2. The other case that I would like to mention occurred in the spring of 1962 over extreme northeastern Montana and took the lives of four men. In this case, there were no fronts involved, but the air mass over Montana was moist and unstable and by mid-afternoon was producing some scattered snow showers mostly over the northern portion of Montana east of the Continental Divide. The terminal weather reports during the afternoon from Miles City and Glasgow, showed mostly scattered cloudiness with the cloud bases near four thousand feet above the ground. This would suggest that this shower area could be over his line of flight by late afternoon.

In conclusion, from Case 1, the pilot should be aware of any fronts in his area and the amount of weather associated with the front. The leading edge of some fronts will contain almost a solid wall of weather while other fronts will contain very little weather and are of little or no hazard to flight.

From Case 2, the pilot should be observant of all remarks following an hourly weather observation. The pilot also should recognize that any time scattered showers extend to the ground, they are associated with the heavy-type cumulus cloud with its associated moderate or more turbulence, icing, and sometimes brief but strong surface winds.

As all weather is not associated with fronts, my suggestion to the pilot is to be curious, take an extra few minutes and try to find out what is producing the weather. It is obvious that the weather forecasters do not have all the answers, but they have a lot of them.

Jeppesen Acquires Los Angeles Firm

Jeppesen & Co., world's leading producers of air navigation charts and pilot accessories, has acquired Aero-Progress, Inc., Los Angeles.



Concluding final arrangements for the acquisition by Jeppesen and Company, Denver, of Los Angeles based Aero-Progress, Inc., are, left to right: Barry Schiff, Aero-Progress President and E. B. Jeppesen, President of the Denver firm.

Aero-Progress, Inc. produces pilot training record albums used as aids in connection with pilot ground school courses. The records are processed and manufactured by RCA Victor, and the albums distributed internationally through flight schools and aviation supply dealers. Each record album deals with a separate aviation subject. A wide range of subjects are covered, including meteorology, theory of flight, visual flight, and instrument flight. Also produced by the newly acquired firm is the Pilot's Digest, a reference manual which condenses all required aviation subjects onto individual plastic pages for quick reference and review.

This acquisition will strengthen and diversify the activities of Jeppesen & Co., according to Jeppesen. Jeppesen air navigation charts are now used exclusively throughout the United States by all the U. S. military services, by the U. S. Army internationally, by all U. S. airlines, many international airlines, and by two-thirds of all instrument-qualified business pilots. In addition, the Denver company produces a complete line of air navigation plotters, computers and other pilot accessories. "Our firm's goal," states E. B. Jeppesen, President, "is to promote air safety by producing, and placing in the hands

of all pilots, every possible professional educational and navigational tool. Our acquisition of these fine Aero-Progress productions will help Jeppesen & Co. contribute even more to pilot proficiency and air safety.

Jeppesen & Co. is headquartered in Denver. The firm also maintains a similar facility in Frankfurt Main, Germany, to serve its customers in Europe, the Middle East, the Near East and Africa.

Improved General Aviation Cockpit

The initial study phase of the Federal Aviation Agency's Project Little Guy, which aims at development of a simplified, more efficient, and economical cockpit for the general aviation pilot, has been completed with publication of a report containing major recommendations and design of an experimental mock-up that could evolve into the light plane instrument panel of the future.

Copies of the report and photographs of the mock-up are available from the Federal Aviation Agency.

The report, prepared under contract by the Matrix Corporation, Arlington, Va., calls for a "systems approach" to cockpit design that would (1) "reduce the burden" on the general aviation pilot, (2) "decrease his training and proficiency requirements to a minimum" consistent with both his needs and the safe and efficient use of airspace, (3) permit him to "fully utilize" his aircraft, (4) make "general aviation aircraft available to more and more people in terms of reduced complexity" of operations, and (5) encourage further expansion of the nation's light plane fleet.

"The present flight control apparatus," the study declares, "appears to have developed in a piecemeal fashion. As more sophisticated means became available they were introduced in additive fashion without eliminating any of the previous subsystems. A profusion of redundant subsystems exist with little attempt at meaningful integration. The re-

sult has been to place almost the entire function of integrating the machine and the environment on the man. This, of course, has necessitated high skill levels, increased training time, increased complexity and, therefore, decreased convenience and utilization."

An experimental mock-up, product of parallel contract study by the industrial design firm Jon W. Hauser, Inc., St. Charles, Illinois, incorporates many of the specific instrument panel recommendations contained in the report. Subject to continuing modification and improvement as Project Little Guy moves ahead, the static mock-up includes among its elements:

1. Check-off sheets that pull out of the instrument panel covering start, take-off, cruise, landing, and shutdown.
2. A bank of warning lights to alert the pilot to such conditions as "fuel low," "stall warning," "engine malfunction," "door unlocked."
3. Horizontal, linear airspeed indicator.
4. Pictorial attitude display.
5. Landing gear actuating lever removed from other controls and placed to minimize the chance of inadvertent retraction of the gear on the ground.
6. Pictorial navigation display showing aircraft position on a map of the area, with inputs from electronic navigation equipment.
7. Dial showing hours of fuel remaining at current speed.
8. Programmed power-settings on easily-read columnar displays. The pilot would match his throttle, mixture, and prop settings against required settings shown on the display for takeoff, climb, and high, normal and economy cruise.
9. Vertical read-out altimeter and rate-of-climb indicator.
10. Horizontal directional gyro display.

Many of the controls and displays are color-coded.

Next major step in Project Little Guy will be construction of a dynamic model of this instrument panel and intensive testing of it in a simulator at FAA's National Aviation Facilities Experimental Center (NAFEC), Atlantic City, N. J. During this stage, the panel will be under continual critical assessment, with changes, improvements, and additions expected.

The panel and other possible developmental cockpit arrangements that come out of simulation and study work through the remainder of 1963 and into 1964 could be far different from the current mock-up.

Stringent evaluation and appraisal will continue during a program of flight-testing Little Guy equipment and systems scheduled to get under way in 1964.

Project objective, following this test work, is to make improved prototype equipment that meets Project Little Guy's aims available to the aviation industry for future aircraft.

Through the successive phases of the program, comments and appraisals of developmental equipment will be sought from general aviation users and industry.

1944—June 6 (D-Day). A gigantic sky-train, nine planes wide and 200 miles long, carries American and British air-borne troops across the English Channel for invasion of Europe.

Remember: If you hoot with the owls at night, you can't soar with the eagles in the morning.

1910—June. First night flight in America made by Charles W. Hamilton at Camp Dickinson, Knoxville, Tenn.

1923—June 26. First refueling in mid-air between two airplanes is made by Lieutenants Smith and Richter at San Diego, Calif.

1928—June 17-18. Amelia Earhart, with William Stultz, pilot, and Lew Gordon, mechanic, becomes the first woman to fly across the Atlantic, by flying from Trepassey Bay, Newfoundland, to Burry Port, Wales, in the trimotored Fokker "Friendship."

1949—July 18. Air Force announces successful tests by pilots of bailout ejection seats from airplanes traveling at 555 m.p.h.

MEMBER

NATIONAL ASSOCIATION OF STATE AVIATION OFFICIALS

PURPOSE:—"To foster aviation as an industry, as a mode of transportation for persons and property and as an arm of the national defense; to join with the Federal Government and other groups in research, development, and advancement of aviation; to develop uniform aviation laws and regulations; and to otherwise encourage co-operation and mutual aid among the several states."



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